

CONTAINS NO CBI



Form Approved
OMB No. 2010-0019
Approval Expires 12-31-89

90-890000 465

EPA-OTS



000622693S

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Comprehensive Assessment Information Rule

REPORTING FORM

When completed, send this form to:

Document Processing Center
Office of Toxic Substances, TS-790
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460
Attention: CAIR Reporting Office

For Agency Use Only:

Date of Receipt: _____

Document
Control Number: _____

Docket Number: _____

General Offices/3M

3M Center
St. Paul, Minnesota 55144-1000
612/733 1110

CONTAINS NO CBI

90-890000465

3M

July 5, 1989

Certified Mail

Document Processing Center
Office of Toxic Substances, TS-790
U.S. EPA
401 M St., S.W.
Washington, D.C. 20460

Attn: CAIR Reporting Office

Dear Sir/Madam:

Attached is a completed CAIR Reporting form for 2,4/2,6-Toluene Diisocyanate, CAS No. 26471-62-5 for the 3M facility in Springfield, Missouri.

I would like to comment on one item. The Employer I.D. No. provided in questions 1.09 and 1.10 is the 9-digit IRS number used by the 3M Company. Since only 8 blocks are provided, the first digit is entered before the first block. This number was used on the advice of the CAIR "hotline".

We are not claiming any CBI in this report.

Sincerely,

Georjean L. Adams

Georjean L. Adams
Manager Regulatory Affairs
Bldg. 225-4N-16
Tele: 612/737-4795

GLA:dm
Attachment

90 JUL 11 PM 1:55
U.S. EPA
OFFICE
TOXIC
SUBSTANCES

SECTION 1 GENERAL MANUFACTURER, IMPORTER, AND PROCESSOR INFORMATION

PART A GENERAL REPORTING INFORMATION

1.01 This Comprehensive Assessment Information Rule (CAIR) Reporting Form has been completed in response to the Federal Register Notice of..... 12 22 86
CBI mo. day year

☐ a. If a Chemical Abstracts Service Number (CAS No.) is provided in the Federal Register, list the CAS No. 026471-62-5

b. If a chemical substance CAS No. is not provided in the Federal Register, list either (i) the chemical name, (ii) the mixture name, or (iii) the trade name of the chemical substance as provided in the Federal Register.

(i) Chemical name as listed in the rule

(ii) Name of mixture as listed in the rule

(iii) Trade name as listed in the rule

c. If a chemical category is provided in the Federal Register, report the name of the category as listed in the rule, the chemical substance CAS No. you are reporting on which falls under the listed category, and the chemical name of the substance you are reporting on which falls under the listed category.

Name of category as listed in the rule

CAS No. of chemical substance 026471-62-5

Name of chemical substance Benzene, 1,3-diisocyanotomethyl

1.02 Identify your reporting status under CAIR by circling the appropriate response(s).

CBI Manufacturer 1

☐ Importer 2

Processor 3

X/P manufacturer reporting for customer who is a processor 4

X/P processor reporting for customer who is a processor 5

☐ Mark (X) this box if you attach a continuation sheet.

1.03 Does the substance you are reporting on have an "x/p" designation associated with it in the above-listed Federal Register Notice?

CBI
☐ Yes ☒ Go to question 1.04
☐ No ☐ Go to question 1.05

1.04 a. Do you manufacture, import, or process the listed substance and distribute it under a trade name(s) different than that listed in the Federal Register Notice? Circle the appropriate response.

CBI
☐ Yes 1
☐ No 2

b. Check the appropriate box below:

☐ You have chosen to notify your customers of their reporting obligations

Provide the trade name(s) N/A

☐ You have chosen to report for your customers

☐ You have submitted the trade name(s) to EPA one day after the effective date of the rule in the Federal Register Notice under which you are reporting.

1.05 If you buy a trade name product and are reporting because you were notified of your reporting requirements by your trade name supplier, provide that trade name.

CBI
Trade name N/A

☐ Is the trade name product a mixture? Circle the appropriate response.

Yes 1

No 2

1.06 Certification -- The person who is responsible for the completion of this form must sign the certification statement below:

CBI
☐ "I hereby certify that, to the best of my knowledge and belief, all information entered on this form is complete and accurate."

Georjean L. Adams

NAME

Georjean L. Adams

SIGNATURE

7/7/89

DATE SIGNED

Manager

TITLE

(612) 737 - 4795

TELEPHONE NO.

☐ Mark (X) this box if you attach a continuation sheet.

- 1.07 Exemptions From Reporting -- If you have provided EPA or another Federal agency with the required information on a CAIR Reporting Form for the listed substance within the past 3 years, and this information is current, accurate, and complete for the time period specified in the rule, then sign the certification below. You CBI ☐ are required to complete section 1 of this CAIR form and provide any information now required but not previously submitted. Provide a copy of any previous submissions along with your Section 1 submission.

"I hereby certify that, to the best of my knowledge and belief, all required information which I have not included in this CAIR Reporting Form has been submitted to EPA within the past 3 years and is current, accurate, and complete for the time period specified in the rule."

N/A

_____ NAME	_____ SIGNATURE	_____ DATE SIGNED
_____ TITLE	(_____)_____ TELEPHONE NO.	_____ DATE OF PREVIOUS SUBMISSION

- 1.08 CBI Certification -- If you have asserted any CBI claims in this report you must certify that the following statements truthfully and accurately apply to all of those confidentiality claims which you have asserted.

CBI ☐ "My company has taken measures to protect the confidentiality of the information, and it will continue to take these measures; the information is not, and has not been, reasonably ascertainable by other persons (other than government bodies) by using legitimate means (other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding) without my company's consent; the information is not publicly available elsewhere; and disclosure of the information would cause substantial harm to my company's competitive position."

N/A

_____ NAME	_____ SIGNATURE	_____ DATE SIGNED
_____ TITLE	(_____)_____ TELEPHONE NO.	

☐ Mark (X) this box if you attach a continuation sheet.

1.09 Facility Identification

Dun & Bradstreet Number[0][4]-[3][9][3]-[7][8][9][5]
EPA ID Number[0][4][3][9][3][7][8][9][5]
Employer ID Number⁴[1][0][4][1][7][7][7][5]
Primary Standard Industrial Classification (SIC) Code[2][8][9][1]
Other SIC Code[2][8][5][1]
Other SIC Code[][][][]

Dun & Bradstreet Number [0][0]-[6][1][7]-[3][0][8][2]
Employer ID Number⁴ [1][0][4][1][7][7][7][5]

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1.11 Parent Company Identification

CBI Name [M][i][n][n]e[s][o][t][a][][M][i][n][i][n][g][][&][][M][f][q].][][C][o]
[][Address [][I][9][4][][E][a][s][t][][a][n][d][][M][c][K][n][i][g][h][t][][R][d]
Street
[][][][][][][][][][][][][][][][][][][S][t].][][P][a][u][l]
City
[M][N] [5][5][1][4][4]--[1][0][0][0]
State Zip
Dun & Bradstreet Number[0][0]-[6][1][7]-[3][0][8][2]

1.12 Technical Contact

CBI Name [] [] [] [] [] [] [] [] [] [] [] [] G e o r g e J e a n L A d a m s
[] Title [M] a n a g e r [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] []
Address [3] M [] C e n t e r [] [] [] [] [] [] [] [] [] [] [] [] [] [] []
Street
[] [] [] [] [] [] [] [] [] [] [] [] [] [] [] S t . [] P a u l
City
[M] N [5] [5] [1] [4] [4] -- [1] [0] [0] [0]
State Zip
Telephone Number [6] [1] [2] - [7] [3] [7] - [4] [7] [9] [5]

1.13 This reporting year is from [] [] Mo. Year to [] [] Mo. Year

☐ Mark (X) this box if you attach a continuation sheet.

N/A

[illegible][illegible]

 --

State Zip

Date of Sale [] [] [] [] [] []
Mo. Day Year

Telephone Number[][]-[][]-[][]

N/A

[illegible][illegible]

[][] [][][][]-[][][][]
State Zip

Date of Purchase [] [] [] [] [] []
Mo. Day Year

Telephone Number[][]-[][]-[][][]

8

1.16 For each classification listed below, state the quantity of the listed substance that was manufactured, imported, or processed at your facility during the reporting year.

CBI

<u>Classification</u>	<u>Quantity (kg/yr)</u>
<input type="checkbox"/> Manufactured	<u>0</u>
Imported	<u>0</u>
Processed (include quantity repackaged)	<u>205,595</u>
Of that quantity manufactured or imported, report that quantity:	
In storage at the beginning of the reporting year	<u>0</u>
For on-site use or processing	<u>0</u>
For direct commercial distribution (including export)	<u>0</u>
In storage at the end of the reporting year	<u>0</u>
Of that quantity processed, report that quantity:	
In storage at the beginning of the reporting year	<u>6,207</u>
Processed as a reactant (chemical producer)	<u>205,595</u>
Processed as a formulation component (mixture producer)	<u>0</u>
Processed as an article component (article producer)	<u>0</u>
Repackaged (including export)	<u>0</u>
In storage at the end of the reporting year	<u>2,895</u>

☐ Mark (X) this box if you attach a continuation sheet.

1.17 Mixture -- If the listed substance on which you are required to report is a mixture or a component of a mixture, provide the following information for each component chemical. (If the mixture composition is variable, report an average percentage of each component chemical for all formulations.)

N/A

[]

Component Name	Supplier Name	Average % Composition by Weight (specify precision, e.g., 45% \pm 0.5%)
Total		100%

☐ Mark (X) this box if you attach a continuation sheet.

2.04 State the quantity of the listed substance that your facility manufactured, imported, or processed during the 3 corporate fiscal years preceding the reporting year in descending order.

CBI

☐ Year ending [1]2 [8]7
Mo. Year

Quantity manufactured 0 kg

Quantity imported 0 kg

Quantity processed 145,117 kg

Year ending [1]2 [8]6
Mo. Year

Quantity manufactured 0 kg

Quantity imported 0 kg

Quantity processed 196,364 kg

Year ending [1]2 [8]5
Mo. Year

Quantity manufactured 0 kg

Quantity imported 0 kg

Quantity processed 136,364 kg

2.05 Specify the manner in which you manufactured the listed substance. Circle all appropriate process types.

CBI

☐ Continuous process N/A 1
Semicontinuous process N/A 2
Batch process N/A 3

☐ Mark (X) this box if you attach a continuation sheet.

2.06 Specify the manner in which you processed the listed substance. Circle all appropriate process types.

- ☐ Continuous process 1
- ☐ Semicontinuous process 2
- ☐ Batch process 3

2.07 State your facility's name-plate capacity for manufacturing or processing the listed substance. (If you are a batch manufacturer or batch processor, do not answer this question.)

N/A

- ☐ Manufacturing capacity kg/yr
- ☐ Processing capacity kg/yr

2.08 If you intend to increase or decrease the quantity of the listed substance manufactured, imported, or processed at any time after your current corporate fiscal year, estimate the increase or decrease based upon the reporting year's production volume.

<input type="checkbox"/>	Manufacturing Quantity (kg)	Importing Quantity (kg)	Processing Quantity (kg)
Amount of increase			N/A
Amount of decrease			N/A

☐ Mark (X) this box if you attach a continuation sheet.

CBI

Days/Year	Average Hours/Day
-----------	----------------------

Manufactured	<u>N/A</u>	<u>N/A</u>
Processed	111	24

Manufactured	N/A	
Processed	N/A	

Manufactured	N/A	
Processed	N/A	

CBI

Maximum daily inventory	_____	kg
Average monthly inventory		kg

[]

2.11 Related Product Types -- List any byproducts, coproducts, or impurities present with the listed substance in concentrations greater than 0.1 percent as it is manufactured, imported, or processed. The source of byproducts, coproducts, or impurities means the source from which the byproducts, coproducts, or impurities are made or introduced into the product (e.g., carryover from raw material, reaction product, etc.).

CBI

[]

<u>CAS No.</u>	<u>Chemical Name</u>	<u>Byproduct, Coproduct or Impurity¹</u>	<u>Concentration (%) (specify \pm % precision)</u>	<u>Source of By-products, Coproducts, or Impurities</u>
This question is all UK.				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

¹Use the following codes to designate byproduct, coproduct, or impurity:

B = Byproduct
C = Coproduct
I = Impurity

[] Mark (X) this box if you attach a continuation sheet.

- 2.12 Existing Product Types -- List all existing product types which you manufactured, imported, or processed using the listed substance during the reporting year. List the quantity of listed substance you use for each product type as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to ☐ the instructions for further explanation and an example.)

a. Product Types ¹	b. % of Quantity Manufactured, Imported, or Processed	c. % of Quantity Used Captively On-Site	d. Type of End-Users ²
B	100	100	I

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/ Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/ Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

²Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

- 2.13 Expected Product Types -- Identify all product types which you expect to manufacture, import, or process using the listed substance at any time after your current corporate fiscal year. For each use, specify the quantity you expect to manufacture, import, or process for each use as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI

☐

a.	b.	c.	d.
Product Types ¹	% of Quantity Manufactured, Imported, or Processed	% of Quantity Used Captively On-Site	Type of End-Users ²
B	100	100	I

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/ Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/ Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

²Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

2.14 Final Product -- Complete the following table for each type of final product manufactured, imported, or processed at your facility that contains the listed substance other than as an impurity.

☐

a.	b.	c.	d.
Product Type ¹	Final Product's Physical Form ²	Average % Composition of Listed Substance in Final Product	Type of End-Users ³
This question is N/A.			

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

²Use the following codes to designate the final product's physical form:

A = Gas	F2 = Crystalline solid
B = Liquid	F3 = Granules
C = Aqueous solution	F4 = Other solid
D = Paste	G = Gel
E = Slurry	H = Other (specify) _____
F1 = Powder	

³Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

2.15 Circle all applicable modes of transportation used to deliver bulk shipments of the
CBI listed substance to off-site customers.

N/A

- ☐ Truck 1
- Railcar 2
- Barge, Vessel 3
- Pipeline 4
- Plane 5
- Other (specify) _____ 6

2.16 Customer Use -- Estimate the quantity of the listed substance used by your customers
CBI or prepared by your customers during the reporting year for use under each category
of end use listed (i-iv).

This question is N/A.

☐

Category of End Use

i. Industrial Products

Chemical or mixture kg/yr

Article kg/yr

ii. Commercial Products

Chemical or mixture kg/yr

Article kg/yr

iii. Consumer Products

Chemical or mixture kg/yr

Article kg/yr

iv. Other

Distribution (excluding export) kg/yr

Export kg/yr

Quantity of substance consumed as reactant kg/yr

Unknown customer uses kg/yr

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 3 PROCESSOR RAW MATERIAL IDENTIFICATION

PART A GENERAL DATA

- 3.01 Specify the quantity purchased and the average price paid for the listed substance for each major source of supply listed. Product trades are treated as purchases.
CBI The average price is the market value of the product that was traded for the listed substance.

<input type="checkbox"/>	Source of Supply	Quantity (kg)	Average Price (\$/kg)
	The listed substance was manufactured on-site.	N/A	
	The listed substance was transferred from a different company site.	N/A	
	The listed substance was purchased directly from a manufacturer or importer.	201,577	
	The listed substance was purchased from a distributor or repackager.	N/A	
	The listed substance was purchased from a mixture producer.	N/A	

- 3.02 Circle all applicable modes of transportation used to deliver the listed substance to your facility.

- ☐ Truck ①
- Railcar 2
- Barge, Vessel 3
- Pipeline 4
- Plane 5
- Other (specify) _____ 6
-

☐ Mark (X) this box if you attach a continuation sheet.

3.03 a. Circle all applicable containers used to transport the listed substance to your facility.
CBI

☐ Bags 1
Boxes 2
Free standing tank cylinders 3
Tank rail cars 4
Hopper cars 5
Tank trucks 6
Hopper trucks 7
Drums 8
Pipeline 9
Other (specify) _____ 10

b. If the listed substance is transported in pressurized tank cylinders, tank rail cars, or tank trucks, state the pressure of the tanks.

Tank cylinders mmHg
Tank rail cars mmHg
Tank trucks N/A mmHg

☐ Mark (X) this box if you attach a continuation sheet.

PART B RAW MATERIAL IN THE FORM OF A MIXTURE

3.04 If you obtain the listed substance in the form of a mixture, list the trade name(s) of the mixture, the name of its supplier(s) or manufacturer(s), an estimate of the average percent composition by weight of the listed substance in the mixture, and the amount of mixture processed during the reporting year.

CBI

☐ This question is N/A.

<u>Trade Name</u>	<u>Supplier or Manufacturer</u>	<u>Average % Composition by Weight (specify \pm % precision)</u>	<u>Amount Processed (kg/yr)</u>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>

☐ Mark (X) this box if you attach a continuation sheet.

PART C RAW MATERIAL VOLUME

3.05 State the quantity of the listed substance used as a raw material during the reporting year in the form of a class I chemical, class II chemical, or polymer, and the percent composition, by weight, of the listed substance.

☐

	Quantity Used (kg/yr)	% Composition by Weight of Listed Sub- stance in Raw Material (specify \pm % precision)
Class I chemical	205,595	98.5 - 100 % \pm 0K
Class II chemical		
Polymer		

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 4 PHYSICAL/CHEMICAL PROPERTIES

General Instructions:

If you are reporting on a mixture as defined in the glossary, reply to questions in Section 4 that are inappropriate to mixtures by stating "NA -- mixture."

For questions 4.06-4.15, if you possess any hazard warning statement, label, MSDS, or other notice that addresses the information requested, you may submit a copy or reasonable facsimile in lieu of answering those questions which it addresses.

PART A PHYSICAL/CHEMICAL DATA SUMMARY

- 4.01 Specify the percent purity for the three major¹ technical grade(s) of the listed substance as it is manufactured, imported, or processed. Measure the purity of the substance in the final product form for manufacturing activities, at the time you import the substance, or at the point you begin to process the substance.

CBI
☐

	<u>Manufacture</u>	<u>Import</u>	<u>Process</u>
Technical grade #1	_____ % purity	_____ % purity	> 98.5 % purity
Technical grade #2	_____ % purity	_____ % purity	_____ % purity
Technical grade #3	_____ % purity	_____ % purity	_____ % purity

¹Major = Greatest quantity of listed substance manufactured, imported or processed.

- 4.02 Submit your most recently updated Material Safety Data Sheet (MSDS) for the listed substance, and for every formulation containing the listed substance. If you possess an MSDS that you developed and an MSDS developed by a different source, submit your version. Indicate whether at least one MSDS has been submitted by circling the appropriate response.

Yes ①

No 2

Indicate whether the MSDS was developed by your company or by a different source.

Your company 1

Another source 2

☐ Mark (X) this box if you attach a continuation sheet.



MATERIAL SAFETY DATA

OCEAN® Network
EMERGENCY PHONE 1-800-OLIN-911

SECTION I - IDENTIFICATION

MSDS FILE 563

CHEMICAL NAME & SYNONYMS Toluene Diisocyanate 80-20		
CHEMICAL FAMILY Isocyanate	FORMULA $C_9H_6N_2O_2$	PRODUCT TDI 80-20
DESCRIPTION Clear water white to pale yellow liquid with sharp pungent odor		CAS NO. 26471-62-5

SECTION II - NORMAL HANDLING PROCEDURES

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE Harmful if swallowed. Avoid contact with eyes, skin or clothing. Upon contact with skin or eyes, wash off with water. Avoid breathing mist or vapor. Protect against physical damage. Store in a cool, dry, well-ventilated place, away from areas where a fire hazard may be acute. Outside or detached storage is preferred. Blanket storage tanks with inert gas (nitrogen) or dry air. Separate from oxidizing materials.	
PROTECTIVE EQUIPMENT EYES Goggles GLOVES Rubber, NBR or PVA OTHER Coveralls, impervious footwear	VENTILATION REQUIREMENTS As required to keep airborne concentrations below TLV

SECTION III - HAZARDOUS INGREDIENTS

BASIC MATERIAL	OSHA PEL	LD50	LC50	SIGNIFICANT EFFECTS
*Toluene-2,4-diisocyanate (80%) CAS No.: 584-84-9	0.02 ppm ceiling	5.8 g/kg (rat)	10 ppm/4 hrs (mouse)	Skin, eye, mucous membrane irritation. Pulmonary irritant. Allergic sensitization to skin and respiratory tract. May cause asthma attacks.
*Toluene-2,6-diisocyanate(20%),CAS No.:91-08-7	None established	No data	11 ppm/4 hrs-mouse	Irritation

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT 270°F CEC METHOD	OSHA CLASSIFICATION Not Regulated (Ignitable)	FLAMMABLE EXPLOSIVE LIMIT	LOWER 0.9%	UPPER 9.5%
EXTINGUISHING MEDIA Water, carbon dioxide or dry chemical. Use water to keep the exposed containers cool.				
SPECIAL FIRE HAZARD & FIRE FIGHTING PROCEDURES Use NIOSH/MSHA approved positive pressure self-contained breathing apparatus when any material is involved in a fire.				

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE 0.005 ppm TWA, 0.02 ppm STEL - 2.4 TDI (ACGIH 1987-88)
SYMPTOMS OF OVER EXPOSURE May cause irritation to eyes, throat, lungs, stomach, skin. Allergic sensitization to skin and respiratory tract. May cause asthma attacks
EMERGENCY FIRST-AID PROCEDURES
SKIN Immediately flush thoroughly with water for 15 minutes, call a physician.
EYES Immediately flush thoroughly with water for 15 minutes, call a physician.
INGESTION Immediately drink large quantities of water to dilute.
INHALATION Immediately remove victim to fresh air. Call a physician.

SECTION VI - TOXICOLOGY (PRODUCT)

ACUTE ORAL LD 50 5.8 g/kg (rats). Harmful if swallowed.

ACUTE DERMAL LD 50
> 2 g/kg (rabbits)

ACUTE INHALATION LC 50
10 ppm/4 hrs (mouse)

CARCINOGENICITY Oral Exposure-Positive NTP Bioassay
MUTAGENICITY Not known to be mutagenic
EYE IRRITATION Irritation and/or burns
PRIMARY SKIN IRRITATION
Irritation and/or burns

PRINCIPAL ROUTES OF ABSORPTION
Inhalation, dermal contact

EFFECTS OF ACUTE EXPOSURE May cause irritation to lungs, eyes, throat, stomach, skin. Allergic sensitization of skin and respiratory tract. Corneal injury may occur.

EFFECTS OF CHRONIC EXPOSURE Damage/allergic sensitization to lungs. Inhalation studies indicate not carcinogenic. Carcinogenic risk from industrial use is not significant.

SECTION VII - SPILL AND LEAKAGE PROCEDURES (CONTROL PROCEDURES)

ACTION FOR MATERIAL RELEASE OR SPILL

Wear NIOSH/MSHA approved positive pressure supplied air respirator. Follow OSHA regulations for respirator use (see 29 CFR 1910.134). Wear goggles, coveralls and impervious gloves and boots. Add dry non-combustible absorbent, sweep up material and place in an approved DOT container. Add an equal amount of neutralizing solution to the container (90-95% water, 5-10% ammonia). Clean remaining surfaces with neutralizing solution and add this to container. Isolate container in a well-ventilated place and do not seal for 24 hrs. Ammonia vapors may be generated until solution is neutralized. Wash all contaminated clothing before reuse. In the event of a large spill use the telephone number shown on the front of this sheet.

TRANSPORTATION EMERGENCY, CONTACT CHEMTREC 800-424-9300

THE MIXTURE OR TRADE NAME PRODUCT HEREIN CONTAINS A TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372. THE SARA 313 CHEMICALS ARE LISTED IN SECTION III AND ARE INDICATED BY AN ASTERISK (*).

SECTION VIII - SHIPPING DATA

D.O.T. Toluene diisocyanate Poison B UN 2078

SECTION IX - REACTIVITY DATA

STABLE ☒ UNSTABLE ☐ AT ☐ C ☐ F

HAZARDOUS
POLYMERIZATION

MAY OCCUR ☒
WILL NOT OCCUR ☐

CONDITIONS TO AVOID

Water or incompatible materials in a closed system, excess heat
INCOMPATIBILITY (MATERIAL TO AVOID)

Acids, bases and alcohols, surface active materials
HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, nitrogen oxides, hydrogen cyanide

SECTION X - PHYSICAL DATA

MELTING POINT 53-56°F	VAPOR PRESSURE 0.1mmHg, 20°C	VOLATILES No data
BOILING POINT 484°F	SOLUBILITY IN WATER Insoluble	EVAPORATION RATE No data
SPECIFIC GRAVITY (H2O=1) 1.22	PH No data	VAPOR DENSITY (AIR=1) 6.0

INFORMATION: FURNISHED TO

98957C01

FURNISHED BY

DATE DECEMBER 5, 1988

ATTN: DEPT HANDLING MATL SAFETY DATA SHEETS
WORUM CHEMICAL CO
2130 ENERGY PARK DR
ST PAUL MN 55108

Department of Environmental Hygiene and Toxicology
(203) 789-5436

Olin CORPORATION

120 Long Ridge Road, Stamford, Connecticut 06904

OCEAN® Network

EMERGENCY PHONE 1-800-OLIN-911

4.03 Submit a copy or reasonable facsimile of any hazard information (other than an MSDS) that is provided to your customers/users regarding the listed substance or any formulation containing the listed substance. Indicate whether this information has been submitted by circling the appropriate response.

Yes 1

No 2

4.04 For each activity that uses the listed substance, circle all the applicable number(s) corresponding to each physical state of the listed substance during the activity listed. Physical states for importing and processing activities are determined at the time you import or begin to process the listed substance. Physical states for manufacturing, storage, disposal and transport activities are determined using the final state of the product.

CBI

☐

Activity	Physical State				
	Solid	Slurry	Liquid	Liquified Gas	Gas
Manufacture	1	2	3	4	5
Import	1	2	3	4	5
Process	1	2	3	4	5
Store	1	2	3	4	5
Dispose	1	2	3	4	5
Transport	1	2	3	4	5

☐ Mark (X) this box if you attach a continuation sheet.

4.05 Particle Size -- If the listed substance exists in particulate form during any of the following activities, indicate for each applicable physical state the size and the percentage distribution of the listed substance by activity. Do not include particles ≥ 10 microns in diameter. Measure the physical state and particle sizes for importing and processing activities at the time you import or begin to process the listed substance. Measure the physical state and particle sizes for manufacturing storage, disposal and transport activities using the final state of the product.

CBI

☐

Not Applicable.

<u>Physical State</u>		<u>Manufacture</u>	<u>Import</u>	<u>Process</u>	<u>Store</u>	<u>Dispose</u>	<u>Transport</u>
Dust	<1 micron	_____	_____	_____	_____	_____	_____
	1 to <5 microns	_____	_____	_____	_____	_____	_____
	5 to <10 microns	_____	_____	_____	_____	_____	_____
Powder	<1 micron	_____	_____	_____	_____	_____	_____
	1 to <5 microns	_____	_____	_____	_____	_____	_____
	5 to <10 microns	_____	_____	_____	_____	_____	_____
Fiber	<1 micron	_____	_____	_____	_____	_____	_____
	1 to <5 microns	_____	_____	_____	_____	_____	_____
	5 to <10 microns	_____	_____	_____	_____	_____	_____
Aerosol	<1 micron	_____	_____	_____	_____	_____	_____
	1 to <5 microns	_____	_____	_____	_____	_____	_____
	5 to <10 microns	_____	_____	_____	_____	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 5 ENVIRONMENTAL FATE

PART A RATE CONSTANTS AND TRANSFORMATION PRODUCTS

5.01 Indicate the rate constants for the following transformation processes.

a. Photolysis:

Absorption spectrum coefficient (peak) 871 (1/M cm) at 284 nm
 Reaction quantum yield, ϕ UK at _____ nm
 Direct photolysis rate constant, k_p , at ... < 1.2×10^{-3} 1/hr when NO_2 photolysis rate is 0.37/hr⁽²⁾

b. Oxidation constants at 25°C:

For $^1\text{O}_2$ (singlet oxygen), k_{ox} UK 1/M hr
 For RO_2 (peroxy radical), k_{ox} UK 1/M hr

c. Five-day biochemical oxygen demand, BOD_5 ... Not applicable due to reaction with water mg/l

d. Biotransformation rate constant:

For bacterial transformation in water, k_b ... No oxygen consumed 1/hr
 Specify culture in modified MITI test ⁽³⁾

e. Hydrolysis rate constants:

For base-promoted process, k_B UK 1/M hr
 For acid-promoted process, k_A UK 1/M hr
 For neutral process, k_N UK 1/hr

f. Chemical reduction rate (specify conditions) UK

g. Other (such as spontaneous degradation) ... Polyurea formation under hydrolytic conditions. ⁽⁴⁾

☐ Mark (X) this box if you attach a continuation sheet.

PART B PARTITION COEFFICIENTS

5.02 a. Specify the half-life of the listed substance in the following media.

<u>Media</u>	<u>Half-life (specify units)</u>
Groundwater	<< 1 day in water solution (4)
Atmosphere	26 hr (2)
Surface water	<< 1 day in water solution (4)
Soil	< 1 day (4)

b. Identify the listed substance's known transformation products that have a half-life greater than 24 hours.

<u>CAS No.</u>	<u>Name</u>	<u>Half-life (specify units)</u>	<u>Media</u>
Not found	Polyurea	> 1 yr	in water and soil (4)
95-80-7	2,4-Toluene diamine	< 1 day	} in biological waste-water treatment plant (4)
823-40-5	2,6-Toluene diamine	< 1 day	
5206-52-0	Urea, N, N- bis (3-isocyanato-4-methylphenyl)	Unknown half-life	in (5,6)

5.03 Specify the octanol-water partition coefficient, K_{ow} ... log 2.33 at 25°C

Method of calculation or determination QSAR

5.04 Specify the soil-water partition coefficient, K_d reacts with water at 25°C

Soil type

5.05 Specify the organic carbon-water partition coefficient, K_{oc} 2.60 = log at 25°C

5.06 Specify the Henry's Law Constant, H log₁₀ -5.88 atm-m³/mole

☐ Mark (X) this box if you attach a continuation sheet.

5.07 List the bioconcentration factor (BCF) of the listed substance, the species for which it was determined, and the type of test used in deriving the BCF.

<u>Bioconcentration Factor</u>	<u>Species</u>	<u>Test</u> ¹
<u>None detected</u>	<u>Moina macrocopa Straus</u>	<u>Not defined (4)</u>
<u>None detected</u>	<u>Cyprinus carpio</u>	<u>Not defined (4)</u>
<u> </u>	<u> </u>	<u> </u>

¹Use the following codes to designate the type of test:

F = Flowthrough
S = Static

- (1) Phillips and Nachod, eds., Organic Electronic Spectral Data, Vol. IV, pg. 200.
- (2) K. H. Becker, V. Bastian and Th. Klein, The reactions of toluenediisocyanate, toluenediamine and methylenedianiline under simulated atmospheric conditions, J. Photochem. and Photobiol., A: Chemistry, 45 (1988) 195-205.
- (3) N. Caspers, B. Hamburger, R. Kanne and Waklebert, Ecotoxicity of TDI, MDI, TDA and MDA, Report to the International Isocyanate Institute, E-CE-41, 1986. Quoted in D. S. Gilbert, Fate of TDI and MDI in Air, Soil and Water, Polyurethanes World Congress 1987, Proceedings of the SPI/FSK.
- (4) F. K. Brochhagen and B. M. Grieveson, Environmental aspects of isocyanates in water and soil, Cellular Polymers, 3 (1984) 11-17.
- (5) K. Marcali, Microdetermination of toluenediisocyanate in atmosphere, Anal. Chem. 29 (1957) 552-558.
- (6) G. A. Campbell, T. J. Dearlove and W. C. Meluch, Di (isocyanatotolyl) urea, U.S. Patent 3,906,019 (1975), Chem. Abs. 84:5655h.

☐ Mark (X) this box if you attach a continuation sheet.

~~6.04~~ For each market listed below, state the quantity sold and the total sales value of
CBI the listed substance sold or transferred in bulk during the reporting year.

☐

<u>Market</u>	<u>Quantity Sold or Transferred (kg/yr)</u>	<u>Total Sales Value (\$/yr)</u>
Retail sales	_____	_____
Distribution -- Wholesalers	_____	_____
Distribution -- Retailers	_____	_____
Intra-company transfer	_____	_____
Repackagers	_____	_____
Mixture producers	_____	_____
Article producers	_____	_____
Other chemical manufacturers or processors	_____	_____
Exporters	_____	_____
Other (specify)	_____	_____
_____	_____	_____

6.05 Substitutes -- List all known commercially feasible substitutes that you know exist
for the listed substance and state the cost of each substitute. A commercially
CBI feasible substitute is one which is economically and technologically feasible to use
in your current operation, and which results in a final product with comparable
performance in its end uses.

☐

<u>Substitute</u>	<u>Cost (\$/kg)</u>
None known.	_____
_____	_____
_____	_____
_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 7 MANUFACTURING AND PROCESSING INFORMATION

General Instructions:

For questions 7.04-7.06, provide a separate response for each process block flow diagram provided in questions 7.01, 7.02, and 7.03. Identify the process type from which the information is extracted.

PART A MANUFACTURING AND PROCESSING PROCESS TYPE DESCRIPTION

7.01 In accordance with the instructions, provide a process block flow diagram showing the major (greatest volume) process type involving the listed substance.

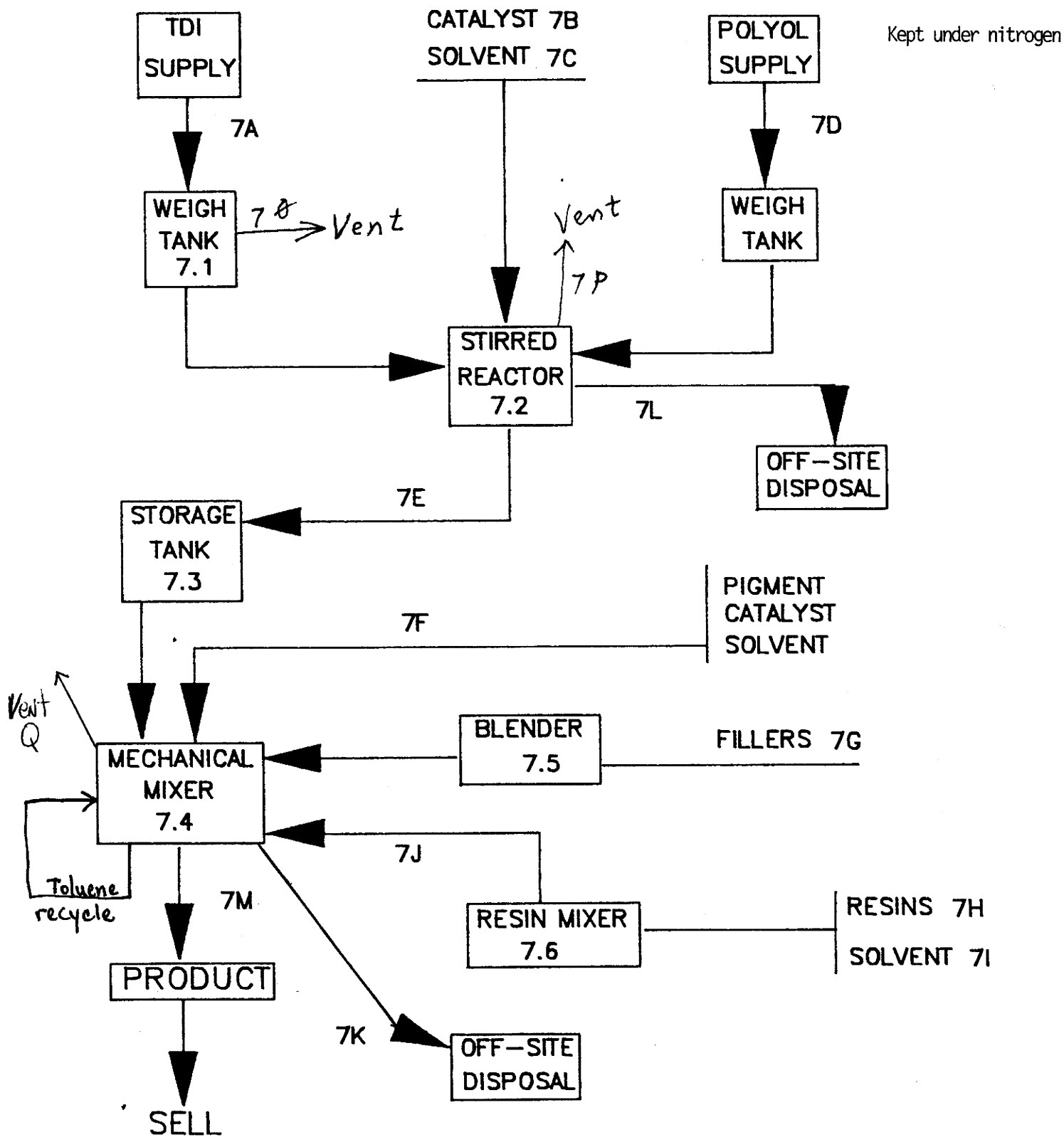
CBI

☐ Process type Urethane

☒ Mark (X) this box if you attach a continuation sheet.

7.01

URETHANE PROCESSING DIAGRAM



7.03 In accordance with the instructions, provide a process block flow diagram showing all process emission streams and emission points that contain the listed substance and which, if combined, would total at least 90 percent of all facility emissions if not treated before emission into the environment. If all such emissions are released from one process type, provide a process block flow diagram using the instructions for question 7.01. If all such emissions are released from more than one process type, provide a process block flow diagram showing each process type as a separate block.

CBI

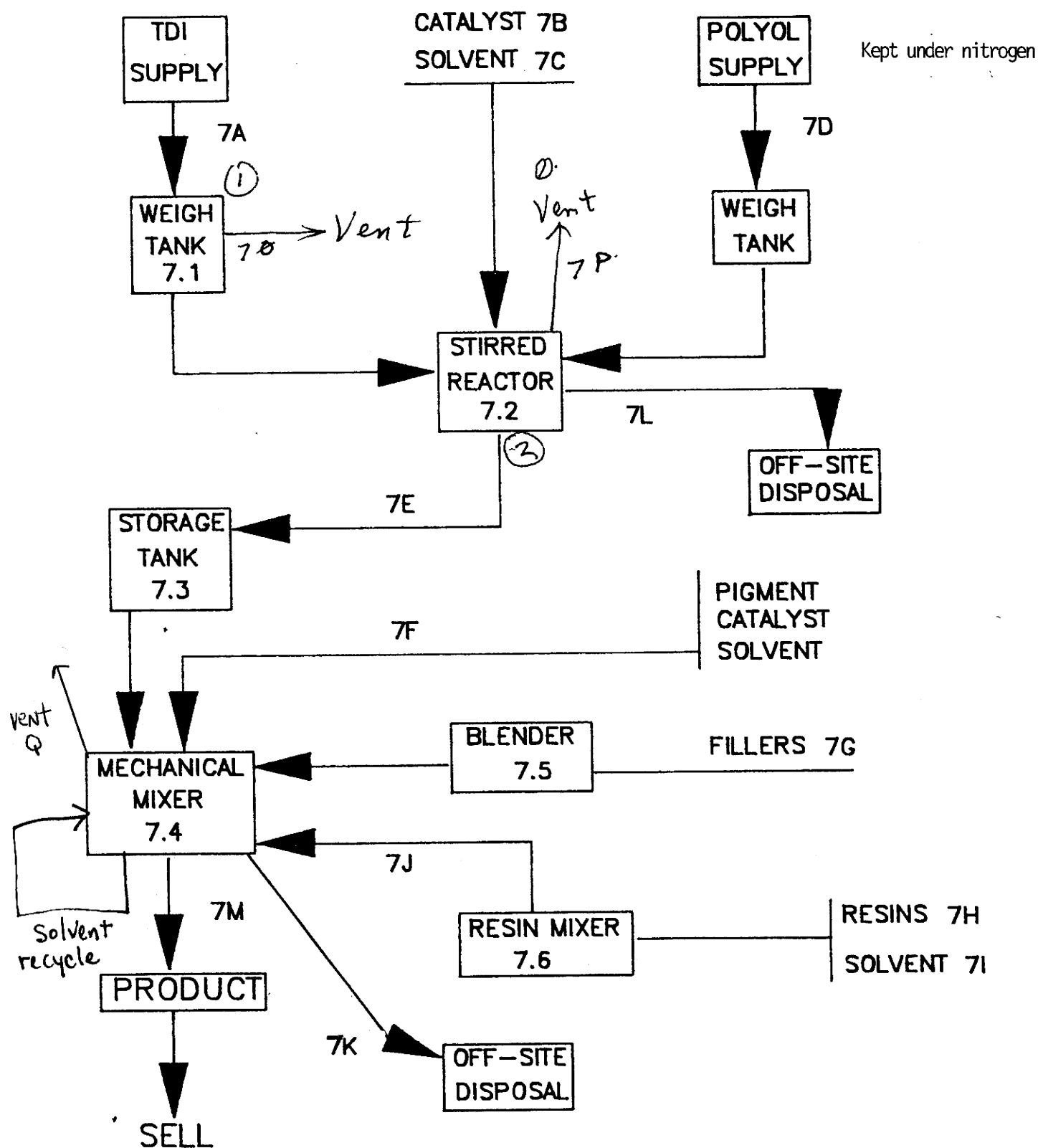
☐ Process type Urethane

SARA Section 313

1. Vented emissions	65 lbs
2. Fugitive emissions from lines to mixer	32 lbs

☒ Mark (X) this box if you attach a continuation sheet.

URETHANE PROCESSING DIAGRAM



7.04 Describe the typical equipment types for each unit operation identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type Urethane Processing

Unit Operation ID Number	Typical Equipment Type	Operating Temperature Range (°F)	Operating Pressure Range (mm Hg)	Vessel Composition
<u>7.1</u>	<u>Weigh tank</u>	<u>70-95 °F</u>	<u>760 mm Hg</u> ^{Vented}	<u>Steel</u>
<u>7.2</u>	<u>Reactor</u>	<u>70-180 °F</u>	<u>760 mm Hg</u> ^{Vented}	<u>Stainless</u>
<u>7.3</u>	<u>Storage tank</u>	<u>45-70 °F</u>	<u>760 mm Hg</u>	<u>Steel</u>
<u>7.4</u>	<u>Mixer 1</u>	<u>70-150 °F</u>	<u>Vented/Vacuum</u>	<u>Stainless</u>
<u>7.5</u>	<u>Blender</u>	<u>70-300 °F</u>	<u>Vented</u>	<u>Steel</u>
<u>7.6</u>	<u>Mixer 2</u>	<u>70-120 °F</u>	<u>Vented</u>	<u>Stainless</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

Process kept under nitrogen

☒ Mark (X) this box if you attach a continuation sheet.

7.05 Describe each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type Urethane Processing

Process Stream ID Code	Process Stream Description	Physical State ¹	Stream Flow (kg/yr)
7A	TDI	OL	205,595
7B	Catalyst	OL	1,439
7C	Solvent	OL	205,595
7D	Polyol	OL	205,595
7E	Urethane Prepolymer	OL	2,055,950
7F	Filler	SO	1,654,212
7G	Pigment/Catalyst/Solvent	OL	425,369
7H	Resins	OL/SO	1,240,659

¹Use the following codes to designate the physical state for each process stream:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure)
 SO = Solid
 SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

☒ Mark (X) this box if you attach a continuation sheet.

7.05 Describe each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type Urethane

Process Stream ID Code	Process Stream Description	Physical State ¹	Stream Flow (kg/yr)
7I	Solvent	OL	531,711
7J	Resin Solution	OL	1,772,370
7K	Scrap solvent clean out	OL	20,559 *
7L	Scrap solvent clean out	OL	59,079 *
7M	Product	OL	5,907,902
7 O,P,Q	Vent. to atmosphere	GU	17,000

¹Use the following codes to designate the physical state for each process stream:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure)
 SO = Solid
 SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

* estimates; not definite numbers

☐ Mark (X) this box if you attach a continuation sheet.

7.06 Characterize each process stream identified in your process block flow diagram(s).
 If a process block flow diagram is provided for more than one process type, photocopy
 this question and complete it separately for each process type. (Refer to the
CBI instructions for further explanation and an example.)

☐ Process type Urethane

a. Process Stream ID Code	b. Known Compounds ¹	c. Concen- [*] trations ^{2,3} (% or ppm)	d. Other Expected Compounds	e. Estimated Concentrations (% or ppm)
7A	TDI	100%	UK	N/A
7B	Catalyst	100%	UK	N/A
7C	Solvent	100%	UK	N/A

7.06 continued below

*All concentrations reported as (EXW)

☒ Mark (X) this box if you attach a continuation sheet.

7.06 Characterize each process stream identified in your process block flow diagram(s).
If a process block flow diagram is provided for more than one process type, photocopy
this question and complete it separately for each process type. (Refer to the
CBI instructions for further explanation and an example.)

☐ Process type Urethane

a.	b.	c.	d.	e.
Process Stream ID Code	Known Compounds ¹	Concen- trations ^{2,3} (% or ppm)	Other Expected Compounds	Estimated Concentrations (% or ppm)
7D	Polyol	100%	none	N/A
7E	Urethane	95%	UK	N/A
	TDI	5%	UK	N/A
7F	Pigment	1.5%	none	N/A
	Catalyst	5.5%	none	N/A
	Solvent	93%	none	N/A

7.06 continued below

☒ Mark (X) this box if you attach a continuation sheet.

7.06 Characterize each process stream identified in your process block flow diagram(s).
 If a process block flow diagram is provided for more than one process type, photocopy
 this question and complete it separately for each process type. (Refer to the
CBI instructions for further explanation and an example.)

☐ Process type Urethane

a.	b.	c.	d.	e.
Process Stream ID Code	Known Compounds ¹	Concen- trations ^{2,3} (% or ppm)	Other Expected Compounds	Estimated Concentrations (% or ppm)
7G	Fillers	100%	none	N/A
7H	Resin	100%	none	N/A
7I	Solvent	100%	none	N/A

7.06 continued below

☒ Mark (X) this box if you attach a continuation sheet.

7.06 Characterize each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the CBI instructions for further explanation and an example.)

☐ Process type Urethane

a.	b.	c.	d.	e.
Process Stream ID Code	Known Compounds ¹	Concentrations ^{2,3} (% or ppm)	Other Expected Compounds	Estimated Concentrations (% or ppm)
7J	Resin	70%	none	N/A
	Solvent	30%	none	N/A
7K	Scrap prepolymer	4-5% (E)(W)	polyols	UK
	Toluene	95% (E)(W)	TDI	< 0.05% (E)(W)
7L	Scrap product	4-5% (E)(W)	TDI	< 0.05% (E)(W)
	Toluene	95% (E)(W)		

7.06 continued below

☒ Mark (X) this box if you attach a continuation sheet.

7.06 Characterize each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the CBI instructions for further explanation and an example.)

☐ Process type Urethane

a.	b.	c.	d.	e.
Process Stream ID Code	Known Compounds ¹	Concentrations ^{2,3} (% or ppm)	Other Expected Compounds	Estimated Concentrations (% or ppm)
7M	Product	100% (E)(W)	none	N/A
70	Nitrogen	100% (E)(W)	TDI	UK - (trace)
7 P,Q	Toluene	< 1% (E)(W)	TDI	UK - (trace)
	Nitrogen	> 99% (E)(W)		

7.06 continued below

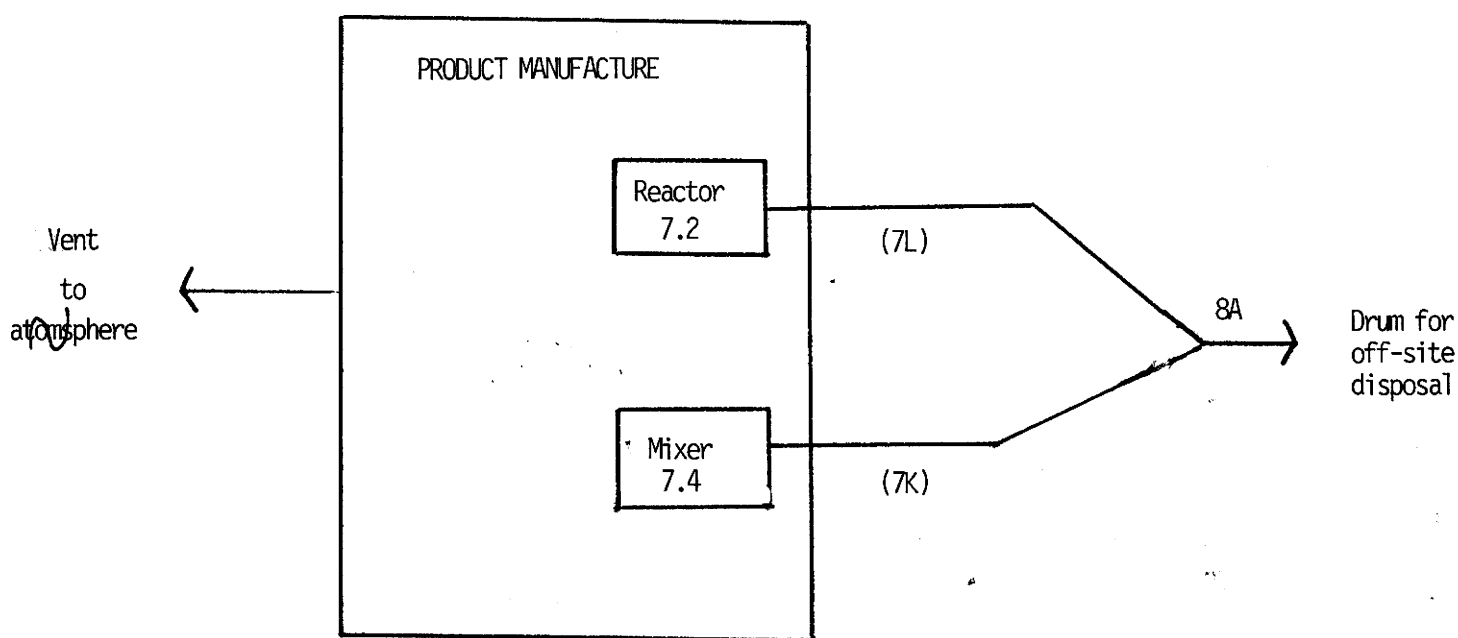
☐ Mark (X) this box if you attach a continuation sheet.

PART A RESIDUAL TREATMENT PROCESS DESCRIPTION

8.01 In accordance with the instructions, provide a residual treatment block flow diagram which describes the treatment process used for residuals identified in question 7.01.

CBI

☐ Process type Urethane



☐ Mark (X) this box if you attach a continuation sheet.

PART B RESIDUAL GENERATION AND CHARACTERIZATION

8.05 Characterize each process stream identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the instructions for further explanation and an example.)

☐ Process type Urethane Processing

[illegible]

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

¹Use the following codes to designate the type of hazardous waste:

I = Ignitable
C = Corrosive
R = Reactive
E = EP toxic
T = Toxic
H = Acutely hazardous

²Use the following codes to designate the physical state of the residual:

GC = Gas (condensable at ambient temperature and pressure)
GU = Gas (uncondensable at ambient temperature and pressure)
S0 = Solid
SY = Sludge or slurry
AL = Aqueous liquid
OL = Organic liquid
IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

³For each additive package introduced into a process stream, specify the compounds that are present in each additive package, and the concentration of each component. Assign an additive package number to each additive package and list this number in column d. (Refer to the instructions for further explanation and an example. Refer to the glossary for the definition of additive package.)

Additive Package Number	Components of Additive Package	Concentrations (% or ppm)
<u>1</u>	This question is N/A.	
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		

⁴Use the following codes to designate how the concentration was determined:

A = Analytical result

E = Engineering judgement/calculation

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

⁵Use the following codes to designate how the concentration was measured:

V = Volume

W = Weight

⁶Specify the analytical test methods used and their detection limits in the table below. Assign a code to each test method used and list those codes in column e.

<u>Code</u>	<u>Method</u>	<u>Detection Limit</u> <u>(± ug/l)</u>
<u>1</u>	This question is N/A.	
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		
<u>6</u>		

☐ Mark (X) this box if you attach a continuation sheet.

CBI

[illegible]

²Use the codes provided in Exhibit 8-2 to designate the management methods

58

8.22 Describe the combustion chamber design parameters for each of the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

☐

<u>Incinerator</u>	<u>Combustion Chamber Temperature (°C)</u>		<u>Location of Temperature Monitor</u>		<u>Residence Time In Combustion Chamber (seconds)</u>	
	<u>Primary</u>	<u>Secondary</u>	<u>Primary</u>	<u>Secondary</u>	<u>Primary</u>	<u>Secondary</u>
<u>1</u>	_____	_____	_____	_____	_____	_____
<u>2</u>	_____	_____	_____	_____	_____	_____
<u>3</u>	_____	_____	_____	_____	_____	_____

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

8.23 Complete the following table for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

☐

Not Applicable.

<u>Incinerator</u>	<u>Air Pollution Control Device¹</u>	<u>Types of Emissions Data Available</u>
<u>1</u>	_____	_____
<u>2</u>	_____	_____
<u>3</u>	_____	_____

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Use the following codes to designate the air pollution control device:

S = Scrubber (include type of scrubber in parenthesis)

E = Electrostatic precipitator

O = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

PART A EMPLOYMENT AND POTENTIAL EXPOSURE PROFILE

9.01 Mark (X) the appropriate column to indicate whether your company maintains records on the following data elements for hourly and salaried workers. Specify for each data element the year in which you began maintaining records and the number of years the records for that data element are maintained. (Refer to the instructions for further explanation and an example.)

☐ CBI

Data Element	Data are Maintained for:		Year in Which Data Collection Began	Number of Years Records Are Maintained
	Hourly Workers	Salaried Workers		
Date of hire	<u>X</u>	<u>X</u>	<u>1975</u>	<u>indefinitely</u>
Age at hire	<u>X</u>	<u>X</u>	<u>1975</u>	<u>indefinitely</u>
Work history of individual before employment at your facility	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Sex	<u>X</u>	<u>X</u>	<u>1975</u>	<u>indefinitely</u>
Race	<u>X</u>	<u>X</u>	<u>1975</u>	<u>indefinitely</u>
Job titles	<u>X</u>	<u>X</u>	<u>1975</u>	<u>indefinitely</u>
Start date for each job title	<u>X</u>	<u>X</u>	<u>1975</u>	<u>indefinitely</u>
End date for each job title	<u>X</u>	<u>X</u>	<u>1975</u>	<u>indefinitely</u>
Work area industrial hygiene monitoring data *	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Personal employee monitoring data	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Employee medical history	<u>X</u>	<u>X</u>	<u>about 1960</u>	<u>indefinitely</u>
Employee smoking history	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Accident history	<u>X</u>	<u>X</u>	<u>about 1960</u>	<u>indefinitely</u>
Retirement date	<u>X</u>	<u>X</u>	<u>1932</u>	<u>indefinitely</u>
Termination date	<u>X</u>	<u>X</u>	<u>1932</u>	<u>indefinitely</u>
Vital status of retirees	<u>X</u>	<u>X</u>	<u>1932</u>	<u>indefinitely</u>
Cause of death data	<u>X</u>	<u>X</u>	<u>about 1960</u>	<u>indefinitely</u>

☐ Mark (X) this box if you attach a continuation sheet.

9.02 In accordance with the instructions, complete the following table for each activity in which you engage.

CBI

<input type="checkbox"/>	a.	b.	c.	d.	e.
	<u>Activity</u>	<u>Process Category</u>	<u>Yearly Quantity (kg)</u>	<u>Total Workers</u>	<u>Total Worker-Hours</u>
	Manufacture of the listed substance	Enclosed	N/A	N/A	N/A
		Controlled Release	N/A	N/A	N/A
		Open	N/A	N/A	N/A
	On-site use as reactant	Enclosed	205,564	9	7,992
		Controlled Release (Vented)	31	N/A	N/A
		Open	0	N/A	N/A
	On-site use as nonreactant	Enclosed	N/A	N/A	N/A
		Controlled Release	N/A	N/A	N/A
		Open	N/A	N/A	N/A
	On-site preparation of products	Enclosed	N/A	N/A	N/A
		Controlled Release	N/A	N/A	N/A
		Open	N/A	N/A	N/A

☐ Mark (X) this box if you attach a continuation sheet.

9.03 Provide a descriptive job title for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance.

CBI

☐

Labor Category

Descriptive Job Title

A

Resource Urethane Operator #8 (9)

B

Material Receivers (2)

C

D

E

F

G

H

I

J

☐ Mark (X) this box if you attach a continuation sheet.

9.04 In accordance with the instructions, provide your process block flow diagram(s) and indicate associated work areas.

CBI

☐ Process type Urethane

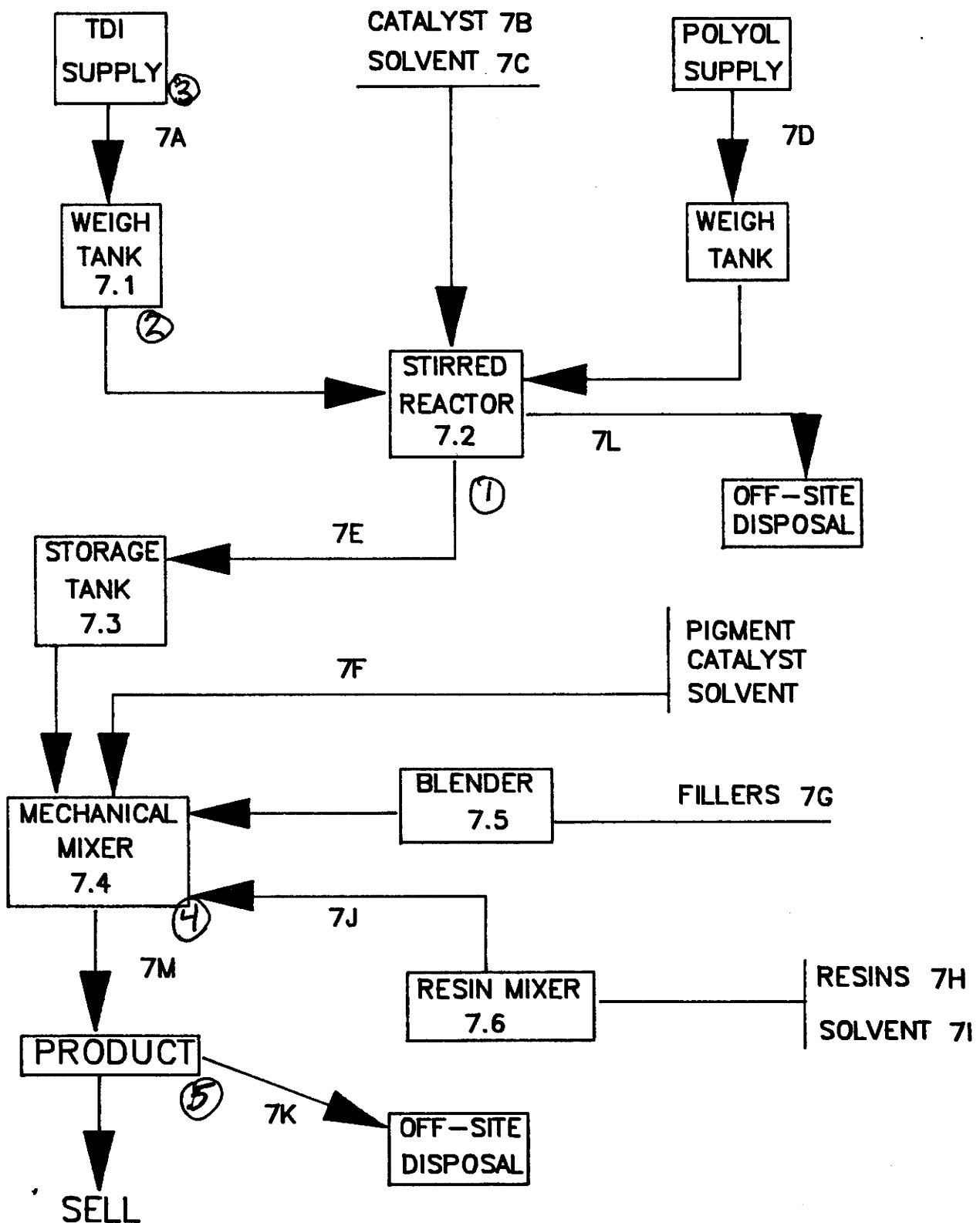
1 = Dump Port - Room 5 - Building 3

2 = 2nd Floor - Mezzanine - Room 5 - Building 3

☒ Mark (X) this box if you attach a continuation sheet.

9.04

URETHANE PROCESSING DIAGRAM



9.05 Describe the various work area(s) shown in question 9.04 that encompass workers who may potentially come in contact with or be exposed to the listed substance. Add any additional areas not shown in the process block flow diagram in question 7.01 or 7.02. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Urethane

Work Area ID

Description of Work Areas and Worker Activities

1

Resource Urethane Operator #8

2

3

4

Material Receivers

5

Plant Emergency Squad Members

6

7

8

9

10

Work Areas 1-3 = Workers prepare batches per process standard. System is completely enclosed except for dump port, but material is re-acted at this point.

Work Area 4 = Material Receivers transfer TDI from tank truck to storage tank. Positive air respiration and protective clothing is worn.

Work Area 5 = Plant Emergency Squad would be called out on a spill. Procedure specific, positive air respiration with protective clothing.

☐ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

☐ Process type Urethane

Work area

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
A	2	Inhalation	GU	6 hrs	~125
B	2	Inhalation	GU	6 hrs	12
A	2	Inhalation	GU	3 hrs	~125

System is totally sealed. Exposure would be to trace quantities only.

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)
 SO = Solid

SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
 B = Greater than 15 minutes, but not exceeding 1 hour
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours
 E = Greater than 4 hours, but not exceeding 8 hours
 F = Greater than 8 hours

☐ Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Urethane

Work area

<u>Labor Category</u>	<u>8-hour TWA Exposure Level (ppm, mg/m³, other-specify)</u>	<u>15-Minute Peak Exposure Level (ppm, mg/m³, other-specify)</u>
Work areas 1-5	0	0

☐ Mark (X) this box if you attach a continuation sheet.

PART B WORK PLACE MONITORING PROGRAM

9.08 If you monitor worker exposure to the listed substance, complete the following table.

CBI

☐

Sample/Test	Work Area ID	Testing Frequency (per year)	Number of Samples (per test)	Who Samples ¹	Analyzed In-House (Y/N)	Number of Years Records Maintained
Personal breathing zone	1-3	1	2	A	N	Indefinite
General work area (air)	1-3	continuous	N/A	D	Y	None
Wipe samples						
Adhesive patches						
Blood samples						
Urine samples						
Respiratory samples						
Allergy tests						
Other (specify)						
Other (specify)						
Other (specify)						

¹Use the following codes to designate who takes the monitoring samples:

- A = Plant industrial hygienist
- B = Insurance carrier
- C = OSHA consultant
- D = Other (specify) Automatic Monitor

☐ Mark (X) this box if you attach a continuation sheet.

9.09 For each sample type identified in question 9.08, describe the type of sampling and analytical methodology used for each type of sample.

Sample Type	Sampling and Analytical Methodology
Impingers with Marcali Solution	Colorimetric

9.10 If you conduct personal and/or ambient air monitoring for the listed substance, specify the following information for each equipment type used.

Equipment Type ¹	Detection Limit ²	Manufacturer	Averaging Time (hr)	Model Number
E	.001 A	MDA Scientific Inc.	Continuous	#7100

¹Use the following codes to designate personal air monitoring equipment types:

- A = Passive dosimeter
- B = Detector tube
- C = Charcoal filtration tube with pump
- D = Other (specify) _____

Use the following codes to designate ambient air monitoring equipment types:

- E = Stationary monitors located within work area
- F = Stationary monitors located within facility
- G = Stationary monitors located at plant boundary
- H = Mobile monitoring equipment (specify) _____
- I = Other (specify) _____

²Use the following codes to designate detection limit units:

- A = ppm
- B = Fibers/cubic centimeter (f/cc)
- C = Micrograms/cubic meter (μ/m^3)

☐ Mark (X) this box if you attach a continuation sheet.

9.11 If you conduct routine medical tests for monitoring the health effects of exposure to the listed substance, specify the type and frequency of the tests.

CBI

☐

Test Description

Frequency
(weekly, monthly, yearly, etc.)

Clinicals by doctor

yearly

☐ Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Urethane

Work area 1-3

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	Y	1980	N	N/A
General dilution				
Other (specify)				
Vessel emission controls				
Mechanical loading or packaging equipment				
Other (specify)				

☐ Mark (X) this box if you attach a continuation sheet.

9.13 Describe all equipment or process modifications you have made within the 3 years prior to the reporting year that have resulted in a reduction of worker exposure to the listed substance. For each equipment or process modification described, state the percentage reduction in exposure that resulted. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Urethane

Work area All

Equipment or Process Modification	Reduction in Worker Exposure Per Year (%)
<u>None</u>	<u>N/A</u>
<u></u>	<u></u>
<u></u>	<u></u>
<u></u>	<u></u>
<u></u>	<u></u>

☐ Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Urethane

Work area 1-5

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	<u>Y</u>
Safety goggles/glasses	<u>Y</u>
Face shields	<u>Y</u>
Coveralls	<u>N</u>
Bib aprons	<u>N</u>
Chemical-resistant gloves	<u>Y</u>
Other (specify)	
<u>Tyvek Suits</u>	<u>Y</u>
<u>Chemical Resistant Boots</u>	<u>Y</u>

☐ Mark (X) this box if you attach a continuation sheet.

9.15 If workers use respirators when working with the listed substance, specify for each process type, the work areas where the respirators are used, the type of respirators used, the average usage, whether or not the respirators were fit tested, and the type and frequency of the fit tests. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Urethane

Work Area	Respirator Type	Average Usage ¹	Fit Tested (Y/N)	Type of Fit Test ²	Frequency of Fit Tests (per year)
1-3	Positive air	E	N	N/A	N/A
4	Positive air	E	N	N/A	N/A
5	Positive air	E	N	N/A	N/A

¹Use the following codes to designate average usage:

A = Daily

B = Weekly

C = Monthly

D = Once a year

E = Other (specify) As required

²Use the following codes to designate the type of fit test:

QL = Qualitative

QT = Quantitative

Fit test not required for positive air respirators.

☐ Mark (X) this box if you attach a continuation sheet.

PART E WORK PRACTICES

9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.

CBI

☐

Process type Urethane

Work area 1,2,4 and 5

1 Use of closed system till reaction has occurred 2 Continuous running monitor in area

3 Written operating procedures and process standards

4 Positive air respirators and neutralizer in immediate area 5 Use of intermediate weigh tank

6 Special valving and venting 7 Regular maintenance Pm's on equipment and monitor

8 Room compartment ventilation

9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type Urethane

Work area 1-5

<u>Housekeeping Tasks</u>	<u>Less Than Once Per Day</u>	<u>1-2 Times Per Day</u>	<u>3-4 Times Per Day</u>	<u>More Than 4 Times Per Day</u>
Sweeping		As Required		
Vacuuming	NA	NA	NA	NA
Water flushing of floors		As Required		
Other (specify)				
Scraping		As Required		

☒ Mark (X) this box if you attach a continuation sheet.

PART E WORK PRACTICES

9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.

CBI

☐

Process type Material Receivers

Work area 3

1 Material Receivers use chemical resistant suits (Tyvek) and positive air respirators when making transfer from truck to tank

2 Signs are put up to warn other people that a TDI transfer is occurring and to stay out of the area

3 Neutralizer is in area

9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type Material Receivers

Work area 3

Housekeeping Tasks	Less Than Once Per Day	1-2 Times Per Day	3-4 Times Per Day	More Than 4 Times Per Day
Sweeping	<u>X</u>	<u> </u>	<u> </u>	<u> </u>
Vacuuming	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Water flushing of floors	<u>X</u>	<u> </u>	<u> </u>	<u> </u>
Other (specify)	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

9.21 Do you have a written medical action plan for responding to routine or emergency exposure to the listed substance?

Routine exposure

Yes 1

No 2

Emergency exposure

Yes 1

No 2

If yes, where are copies of the plan maintained?

Routine exposure: _____

Emergency exposure: _____

9.22 Do you have a written leak and spill cleanup plan that addresses the listed substance? Circle the appropriate response.

Yes (1)

No 2

If yes, where are copies of the plan maintained? Supervisors Area Manual 10 Section 10.10 1.

Has this plan been coordinated with state or local SPCC & RCRA plans response organizations? Circle the appropriate response.

Yes (1)

No 2

9.23 Who is responsible for monitoring worker safety at your facility? Circle the appropriate response.

Plant safety specialist 1

Insurance carrier 2

OSHA consultant 3

Other (specify) _____ 4

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 10 ENVIRONMENTAL RELEASE

General Instructions:

Complete Part E (questions 10.23-10.35) for each non-routine release involving the listed substance that occurred during the reporting year. Report on all releases that are equal to or greater than the listed substance's reportable quantity value, RQ, unless the release is federally permitted as defined in 42 U.S.C. 9601, or is specifically excluded under the definition of release as defined in 40 CFR 302.3(22). Reportable quantities are codified in 40 CFR Part 302. If the listed substance is not a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and, thus, does not have an RQ, then report releases that exceed 2,270 kg. If such a substance however, is designated as a CERCLA hazardous substance, then report those releases that are equal to or greater than the RQ. The facility may have answered these questions or similar questions under the Agency's Accidental Release Information Program and may already have this information readily available. Assign a number to each release and use this number throughout this part to identify the release. Releases over more than a 24-hour period are not single releases, i.e., the release of a chemical substance equal to or greater than an RQ must be reported as a separate release for each 24-hour period the release exceeds the RQ.

For questions 10.25-10.35, answer the questions for each release identified in question 10.23. Photocopy these questions and complete them separately for each release.

PART A GENERAL INFORMATION

10.01 Where is your facility located? Circle all appropriate responses.

CBI

- ☐ Industrial area ①
- Urban area ②
- Residential area ③
- Agricultural area 4
- Rural area 5
- Adjacent to a park or a recreational area 6
- Within 1 mile of a navigable waterway 7
- Within 1 mile of a school, university, hospital, or nursing home facility ⑧
- Within 1 mile of a non-navigable waterway 9
- Other (specify) _____ 10

☐ Mark (X) this box if you attach a continuation sheet.

10.02 Specify the exact location of your facility (from central point where process unit is located) in terms of latitude and longitude or Universal Transverse Mercader (UTM) coordinates.

Latitude 037 ° 12 ' 47 "

Longitude 093 ° 13 ' 38 "

UTM coordinates Zone _____, Northing _____, Easting _____

10.03 If you monitor meteorological conditions in the vicinity of your facility, provide the following information.

Average annual precipitation inches/year

Predominant wind direction

10.04 Indicate the depth to groundwater below your facility.

Depth to groundwater meters

10.05 For each on-site activity listed, indicate (Y/N/NA) all routine releases of the listed substance to the environment. (Refer to the instructions for a definition of CBI Y, N, and NA.)

☐

On-Site Activity	Environmental Release		
	Air	Water	Land
Manufacturing	N/A		
Importing	N/A		
Processing	Y	N	N
Otherwise used	N/A		
Product or residual storage	N/A		
Disposal	N/A		
Transport	N/A		

☐ Mark (X) this box if you attach a continuation sheet.

10.06 Provide the following information for the listed substance and specify the level of precision for each item. (Refer to the instructions for further explanation and an example.)

CBI

<input type="checkbox"/>	Quantity discharged to the air	44	kg/yr ± <u>UK</u> %
	Quantity discharged in wastewaters	0	kg/yr ± _____ %
	Quantity managed as other waste in on-site treatment, storage, or disposal units	0	kg/yr ± _____ %
	Quantity managed as other waste in off-site treatment, storage, or disposal units	40	kg/yr ± <u>UK</u> %

☐ Mark (X) this box if you attach a continuation sheet.

10.08 Describe the control technologies used to minimize release of the listed substance for each process stream containing the listed substance as identified in your process block or residual treatment block flow diagram(s). Photocopy this question and complete it separately for each process type.

CBI

☐

Process type Urethane

<u>Stream ID Code</u>	<u>Control Technology</u>	<u>Percent Efficiency</u>
70, 7P, 7Q	Blower on exit vent to cause more dispersion	N/A
	and TDI reaction with atmospheric moisture	

☐ Mark (X) this box if you attach a continuation sheet.

PART B RELEASE TO AIR

10.09 Point Source Emissions -- Identify each emission point source containing the listed substance in terms of a Stream ID Code as identified in your process block or residual treatment block flow diagram(s), and provide a description of each point source. Do not include raw material and product storage vents, or fugitive emission sources (e.g., equipment leaks). Photocopy this question and complete it separately for each process type.

CBI

☐

Process type Urethane

Point Source
ID Code

Description of Emission Point Source

70 - 7P - 7Q

Vents to common stack

☐ Mark (X) this box if you attach a continuation sheet.

☐ Mark (X) this box if you attach a continuation sheet.

114

10.10 Emission Characteristics - - Characterize the emissions for each Point Source ID Code identified in question 10.09 by completing the following table.

CBI

☐

Point Source ID Code	Physical State ¹	Average Emissions (kg/day)	Frequency ² (days/yr)	Duration ³ (min/day)	Average Emission Factor ⁴	Maximum Emission Rate (kg/min)	Maximum Emission Rate Frequency (events/yr)	Maximum Emission Rate Duration (min/event)
7-0,P,Q	G	< 0.3 TDI	111	30 **	0.0001*	UK	UK	UK
		153 Nitrogen						

¹Use the following codes to designate physical state at the point of release:

G = Gas; V = Vapor; P = Particulate; A = Aerosol; O = Other (specify) _____

²Frequency of emission at any level of emission

³Duration of emission at any level of emission

⁴Average Emission Factor — Provide estimated (\pm 25 percent) emission factor (kg of emission per kg of production of listed substance)

* Total kg TDI emitted
Total kg TDI processed

** Nitrogen is flushed through system
under pressure after each batch (worst case)

10.11 Stack Parameters -- Identify the stack parameters for each Point Source ID Code identified in question 10.09 by completing the following table.

CBI

☐

Point Source ID Code	Stack Height(m)	Stack Inner Diameter (at outlet) (m)	Exhaust Temperature (°C)	Emission Exit Velocity (m/sec)	Building Height(m) ¹	Building Width(m) ²	Vent, Type ³
7- 0,P,Q	10.7	0.3	52	UK	18.3	41	vertical

¹Height of attached or adjacent building

²Width of attached or adjacent building

³Use the following codes to designate vent type:

H = Horizontal

V = Vertical

☐ Mark (X) this box if you attach a continuation sheet.

10.12 If the listed substance is emitted in particulate form, indicate the particle size distribution for each Point Source ID Code identified in question 10.09. Photocopy this question and complete it separately for each emission point source.

CBI

☐

Point source ID code

This question is N/A.

Size Range (microns)

Mass Fraction (% ± % precision)

< 1

≥ 1 to < 10

≥ 10 to < 30

≥ 30 to < 50

≥ 50 to < 100

≥ 100 to < 500

≥ 500

Total = 100%

☐ Mark (X) this box if you attach a continuation sheet.

PART C FUGITIVE EMISSIONS

10.13 Equipment Leaks -- Complete the following table by providing the number of equipment types listed which are exposed to the listed substance and which are in service according to the specified weight percent of the listed substance passing through the component. Do this for each process type identified in your process block or residual treatment block flow diagram(s). Do not include equipment types that are not exposed to the listed substance. If this is a batch or intermittently operated process, give an overall percentage of time per year that the process type is exposed to the listed substance. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Urethane
Percentage of time per year that the listed substance is exposed to this process type 50 %

Equipment Type	Number of Components in Service by Weight Percent of Listed Substance in Process Stream					Greater than 99%
	Less than 5%	5-10%	11-25%	26-75%	76-99%	
Pump seals ¹						
Packed	N/A	N/A	N/A	N/A	N/A	N/A
Mechanical	N/A	N/A	N/A	N/A	N/A	4 *
Double mechanical ²	N/A	N/A	N/A	N/A	N/A	N/A
Compressor seals ¹	N/A	N/A	N/A	N/A	N/A	N/A
Flanges	N/A	N/A	N/A	N/A	N/A	4
Valves						
Gas ³	2	N/A	N/A	N/A	N/A	N/A
Liquid	N/A	N/A	N/A	N/A	N/A	4
Pressure relief devices ⁴ (Gas or vapor only)	N/A	N/A	N/A	N/A	N/A	N/A
Sample connections						
Gas	N/A	N/A	N/A	N/A	N/A	N/A
Liquid	N/A	N/A	N/A	N/A	N/A	N/A
Open-ended lines ⁵ (e.g., purge, vent)						
Gas	N/A	N/A	N/A	N/A	N/A	N/A
Liquid	N/A	N/A	N/A	N/A	N/A	N/A

¹List the number of pump and compressor seals, rather than the number of pumps or compressors

* Flanges act as seals. Pump contains no seals that contain listed substance.

10.13 continued on next page

☐ Mark (X) this box if you attach a continuation sheet.

10.13 (continued)

² If double mechanical seals are operated with the barrier (B) fluid at a pressure greater than the pump stuffing box pressure and/or equipped with a sensor (S) that will detect failure of the seal system, the barrier fluid system, or both, indicate with a "B" and/or an "S", respectively

³ Conditions existing in the valve during normal operation

⁴Report all pressure relief devices in service, including those equipped with control devices

⁵ Lines closed during normal operation that would be used during maintenance operations

10.14 Pressure Relief Devices with Controls -- Complete the following table for those pressure relief devices identified in 10.13 to indicate which pressure relief devices in service are controlled. If a pressure relief device is not controlled, enter "None" under column c.

[]

[

[illegible]

¹Refer to the table in question 10.13 and record the percent range given under the heading entitled "Number of Components in Service by Weight Percent of Listed Substance" (e.g., <5%, 5-10%, 11-25%, etc.)

²The EPA assigns a control efficiency of 100 percent for equipment leaks controlled with rupture discs under normal operating conditions. The EPA assigns a control efficiency of 98 percent for emissions routed to a flare under normal operating conditions

☐ Mark (X) this box if you attach a continuation sheet.

10.15 Equipment Leak Detection -- If a formal leak detection and repair program is in place, complete the following table regarding those leak detection and repair procedures. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Urethane

Equipment Type	Leak Detection	Detection Device ¹	Frequency of Leak Detection (per year)	Repairs Initiated (days after detection)	Repairs Completed (days after initiated)
	Concentration (ppm or mg/m ³)				
	Measured at _____ Inches from Source				
Pump seals	This question is N/A.				
Packed	_____	_____	_____	_____	_____
Mechanical	_____	_____	_____	_____	_____
Double mechanical	_____	_____	_____	_____	_____
Compressor seals	_____	_____	_____	_____	_____
Flanges	_____	_____	_____	_____	_____
Valves					
Gas	_____	_____	_____	_____	_____
Liquid	_____	_____	_____	_____	_____
Pressure relief devices (gas or vapor only)	_____	_____	_____	_____	_____
Sample connections					
Gas	_____	_____	_____	_____	_____
Liquid	_____	_____	_____	_____	_____
Open-ended lines					
Gas	_____	_____	_____	_____	_____
Liquid	_____	_____	_____	_____	_____

¹Use the following codes to designate detection device:

POVA = Portable organic vapor analyzer

FPM = Fixed point monitoring

0 = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

10.16 Raw Material, Intermediate and Product Storage Emissions - - Complete the following table by providing the information on each liquid raw material, intermediate, and product storage vessel containing the listed substance as identified in your process block or residual treatment block flow diagram(s).

CBI

☐

Vessel Type ¹	Floating Roof ² of Seals ²	Composition of Stored Materials ³	Throughput (liters per year)	Vessel Filling Rate (gpm)	Vessel Filling Duration (min)	Vessel Inner Diameter (m)	Vessel Height (m)	Operating Volume (l)	Vessel Emission Controls ⁴	Design Flow Rate ⁵	Vent Diameter (cm)	Control Efficiency (%)	Basis for Estimate ⁶
	This question is N/A.												

¹Use the following codes to designate vessel type:

- F = Fixed roof
- CIF = Contact internal floating roof
- NCIF = Noncontact internal floating roof
- EFR = External floating roof
- P = Pressure vessel (indicate pressure rating)
- H = Horizontal
- U = Underground

²Use the following codes to designate floating roof seals:

- MS1 = Mechanical shoe, primary
- MS2 = Shoe-mounted secondary
- MS2R = Rim-mounted, secondary
- LM1 = Liquid-mounted resilient filled seal, primary
- LM2 = Rim-mounted shield
- LMW = Weather shield
- VM1 = Vapor mounted resilient filled seal, primary
- VM2 = Rim-mounted secondary
- VMW = Weather shield

³Indicate weight percent of the listed substance. Include the total volatile organic content in parenthesis

⁴Other than floating roofs

⁵Gas/vapor flow rate the emission control device was designed to handle (specify flow rate units)

⁶Use the following codes to designate basis for estimate of control efficiency:

- C = Calculations
- S = Sampling

PART E NON-ROUTINE RELEASES

10.23 Indicate the date and time when the release occurred and when the release ceased or was stopped. If there were more than six releases, attach a continuation sheet and list all releases.

<u>Release</u>	<u>Date Started</u>	<u>Time (am/pm)</u>	<u>Date Stopped</u>	<u>Time (am/pm)</u>
<u>1</u>	<u>None</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>2</u>	<u></u>	<u></u>	<u></u>	<u></u>
<u>3</u>	<u></u>	<u></u>	<u></u>	<u></u>
<u>4</u>	<u></u>	<u></u>	<u></u>	<u></u>
<u>5</u>	<u></u>	<u></u>	<u></u>	<u></u>
<u>6</u>	<u></u>	<u></u>	<u></u>	<u></u>

~~10.24~~ Specify the weather conditions at the time of each release.

<u>Release</u>	<u>Wind Speed (km/hr)</u>	<u>Wind Direction</u>	<u>Humidity (%)</u>	<u>Temperature (°C)</u>	<u>Precipitation (Y/N)</u>
<u>1</u>	<u></u>	<u></u>	<u></u>	<u></u>	<u></u>
<u>2</u>	<u></u>	<u></u>	<u></u>	<u></u>	<u></u>
<u>3</u>	<u></u>	<u></u>	<u></u>	<u></u>	<u></u>
<u>4</u>	<u></u>	<u></u>	<u></u>	<u></u>	<u></u>
<u>5</u>	<u></u>	<u></u>	<u></u>	<u></u>	<u></u>
<u>6</u>	<u></u>	<u></u>	<u></u>	<u></u>	<u></u>

☐ Mark (X) this box if you attach a continuation sheet.

General Offices/3M

3M Center
St. Paul, Minnesota 55101-1000

DOCUMENT PROCESSING CENTER
OFFICE OF TOXIC SUBSTANCES, TS-790
U.S. EPA
401 M ST., SW
WASHINGTON, D.C. 20460

Attn. CAIR Report Office

